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TITLE: Masking Ability of Monolithic CAD/CAM Materials With Different Abutments

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CURRENT SCIENTIFIC GROUPS & NETWORKS: Prosthodontics Research

ABSTRACT BODY:

Objectives: Little information is available on the influence of monolithic CAD/CAM restorative materials and abutment colors and materials. Therefore the aim of the present study is to compare color difference of CIELab and CIE2000 color parameters of three monolithic CAD/CAM crowns over three different abutments.

Methods: Fifteen full crowns were fabricated for a model central incisor using three monolithic CAD/CAM restorative materials (n=5), Enamic (LT,A2,Vita Zahnfabrik), Celtra Duo (LT,A2,Dentsply) and IPS.emax CAD (LT,A2,Vivadent/Ivoclar). The color parameters, CIELab (ΔE_{ab}) and CIE2000 (ΔE_{00}), of crowns over three types of substrates including A2 composite resin, A5 composite resin and titanium implant abutment, were measured with the aid of a portable digital device (Easy shade Compact, Vita Zahnfabrik). Mean values of the color differences (ΔE_{ab} and ΔE_{00}) against A2 shade tab of Vita classic shade guide were analyzed using 2-way ANOVA and Tukey's HSD ($\alpha=0.05$).

Results: Significant interaction was present among mean color difference (both ΔE_{ab} and ΔE_{00}) restorative materials and substrates ($p=0.001$). Enamic showed the lowest ΔE_{ab} over Ti ($p < 0.05$). However, no significant difference was found between Celtra and IPS.emax CAD with three abutment substrates. Among three substrates, the highest ΔE_{ab} was achieved A2 with Enamic crowns ($P < 0.05$).

Celtra over A5 showed the lowest ΔE_{00} ($p < 0.05$) and the highest over Ti ($p < 0.05$). Enamic achieved the highest ΔE_{00} over A5 ($p < 0.05$) and the lowest with Ti ($p < 0.05$). IPS.emax CAD showed no significant ΔE_{00} difference over three substrates.

Conclusions: Within the limits of the present study, different monolithic CAD/CAM materials can influence on the final color of the crowns. The resulting color also is affected by underlying color of the abutment. Color difference is better detected using ΔE_{00} formula.

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TABLE FOOTER: (No Tables)

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KEYWORDS: Monolithic CAD/CAM materials, CIELab color parameters, CIE2000 color parameters, masking ability.

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AWARDS: IADR-BSODR Division-Unilever Poster Prize

Group Author Abstracts - Abstract: (none)

Session Chair Volunteers - Abstracts: Poster Session Chair

Special Scheduling Needs - Abstracts: (none)

Student Status - Abstracts: No

Student Other Designation - Abstracts: (none)

Abstract Submission - Track Selection: Clinician Track